

Part 1 -- Amendments to the Specification

- C¹
1. (Amended) A varactor comprising:
 - a diode junction;
 - a depletion region adjacent to the diode junction; and
 - a doped region including the depletion region and having a
 - 5 nonuniform dopant concentration profile that continuously increases with increasing depth of the doped region from the diode junction;
 - and wherein the nonuniform dopant concentration profile causes the varactor to have an approximately linear capacitance/voltage response characteristic.
 2. Canceled
 3. (Amended) A varactor as defined in claim 1 wherein:
 - the nonuniform dopant concentration profile is defined by an equation $N=Bx\exp(m)$, where N is the dopant concentration, x is the depth of the doped region, B is a concentration constant and m is an exponent that determines
 - 5 the degree of curvature of the dopant profile, and m is greater than 1.
 4. Canceled
 5. (Original) A varactor as defined in claim 3 wherein m is about 3.
 6. (Amended) A varactor as defined in claim 3 wherein:
 - B is in a range from about $1.0E13/cm^3$ to about $1.0E19/cm^3$; and
 - m is greater than ~~zero~~ one.
 7. (Original) A varactor as defined in claim 6 wherein B is about $1.0E16/cm^3$.
 - 8.-10. Canceled
 - 11-17. Withdrawn